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Philip J. Leeming

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SEED INTELLECTUAL PROPERTY LAW GROUP PLLC

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EXAMINER

KEYS, ROSALYND ANN

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/538,249	<b>Applicant(s)</b> LEEMING ET AL.	
	<b>Examiner</b> ROSALYND KEYS	<b>Art Unit</b> 1621	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-36 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/25/2006 &amp; 10/16/2006</u> .                              | 6) <input type="checkbox"/> Other: ____.                          |

## **DETAILED ACTION**

### ***Status of Claims***

1. Claims 1-36 are pending.  
Claims 1-36 are rejected.

### ***Priority***

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

3. The information disclosure statements submitted on April 25, 2006 and October 16, 2006 have been considered by the examiner.

### ***Specification***

4. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the specification does not provide support for the limitation of claim 9.

### ***Claim Objections***

5. Claim 30 is objected to because of the following informalities: the word improving is spelled incorrectly in line 1. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Aldrich Catalogue Handbook of Fine Chemicals (1994-1995, catalogue number 10, page 844).

Aldrich Catalogue Handbook of Fine Chemicals teaches the compound 2-isopropoxyethanol (ethylene glycol isopropyl ether), which is a compound of the claimed formula (I), wherein R<sub>1</sub> and R<sub>2</sub> is a C<sub>1</sub> alkyl (methyl) and m is 1 (see page 844).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 1-3, 6-12, 34 and 36 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yatake et al. (US 6,051,057).

Yatake et al. teach and/or suggest compounds having the claimed formula (I) (see entire disclosure, in particular column 2, lines 21-25; column 3, lines 1-7; and column 4, lines 59-61). One specifically disclosed compound of formula I that is taught is one wherein R1 is a C1 alkyl; R2 is a C4 alkyl; and m is 3. Yatake et al. teach and/or suggest compositions having the claimed formula (II) (see entire disclosure, in particular column 5, lines 3-18; column 6, lines 18-43; column 21, lines 23-42). One specifically disclosed composition is one with a 50/50 mixture of compounds having the claimed formula II, wherein R1 is a C1 alkyl; R2 is a C4 alkyl; and m is 3 (see example C7 in column 21). The Examiner considers the statement in the preamble of "a diluent for hydraulic fluids" to be a statement of intended use. Thus, since the composition of

Yatake et al. is capable of performing the intended use as recited in the preamble, then it meets claim 36.

12. Claims 1-22, 25, 34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoru et al. (computer generated English translation of JP 2001-131107).

Satoru et al. teach a glycol ether compound/composition, which has the claimed formula (I)/(II), when R is a C5-8 branched alkyl group, m is 0 and n is  $\geq 2$  or 3 (see entire disclosure, in particular paragraph 0007). It is taught that R can be a 4-methyl-2-pentyl group (see paragraph 0007 and 0012). The glycol ether is produced by adding an alkylene oxide to an alcohol in the presence of a metallic oxide catalyst and distilling some or all of the unreacted alcohol off (see paragraphs 0005 and 0009). Satoru et al. teach a solvent which has the claimed formula (I)/(II), when a is 1-3 and b is 0 (see paragraph 0031). A suitable alcohol for reaction includes 4-methyl-2-pentyl alcohol (see paragraph 0056). The Examiner considers the statement in the preamble of "a diluent for hydraulic fluids" to be a statement of intended use. Thus, since the composition of Satoru et al. is capable of performing the intended use as recited in the preamble, then it meets claim 36.

13. Claims 1, 3-5, 7-13, 15-25, 34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meschke et al. (EP 0 506 087 A2) alone or in view of Moody et al. (US 5,844,115).

Meschke et al. teach an alkoxylate(s) having the claimed formula (I)/(II), when 1 of the z's is zero and x is zero (see entire disclosure, in particular pages 3-5). The

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alkoxylates can be prepared using conventional and well known techniques. For example ethylene oxide can be reacted with a monohydroxy alcohol in the presence of a catalytic material, such as BF<sub>3</sub> and/or potassium hydroxide and the like (see page 4, lines 13-24). After the reaction the alkoxylate(s) can be recovered from solvent and/or unreacted reactants and/or catalyst. One or more conventional techniques suitable for recovering/purifying the alkoxylate product include distillation. The alkoxylates are used in cleaning compositions which may include one or more additional ingredients (see page 4, line 48 to page 5, line 46). The Examiner considers the statement in the preamble of "a diluent for hydraulic fluids" to be a statement of intended use. Thus, since the composition of Meschke et al. is capable of performing the intended use as recited in the preamble, then it meets claim 36.

Meschke et al. differ from the instant invention in that Meschke et al. do not specifically teach the use of a narrow range ethoxylation catalyst. However, Meschke et al. do teach that the alkoxylates can be prepared using conventional and well known techniques.

Moody et al. teach a process for alkoxylation of organic compounds containing at least one active hydrogen which comprises reacting the organic compound with an alkylene oxide in the presence of a catalyst comprising the salt of at least one element chosen from a Group Ia or Group IIa or rare earth element and an oxy acid of at least one element chosen from a Group IVb, Group Vb or Group VIb element or mixtures thereof (see entire disclosure, in particular column 1, line 65 to column 4, line 10). It is taught that the present invention provides molecular weight distributions for both lower

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and higher alkoxyates that are narrower than those which would be expected from alkoxylation reactions using conventional alkali metal hydroxide catalysts (see column 4, lines 6-10).

One having ordinary skill in the art would have found it obvious to use a catalyst as taught by Moody et al. in the process of Meschke et al. if the artisan desired to obtain alkoxyates having narrower molecular weight distribution.

14. Claims 1-22, and 24-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klimpel (Coal Preparation, 1992, 10(1-4), abstract) in view of Hansen et al. (US 4,582,596) and Meschke et al. (EP 0 506 087 A2) and further in view of Firth et al. (US 5,855,769).

Klimpel et al. teach a compound having the claimed formula (I) and its use for improving the flotation performance associated with selected industrial available coals (see attached abstract).

Klimpel et al. differ from the instant invention in that Klimpel et al. do not teach a composition having the claimed formula II.

Hansen et al. teach a froth flotation process for recovering coal or mineral values from raw coal or mineral ore which comprises subjecting the raw coal or mineral ore to a flotation process in the presence of a flotation collector, and a flotating amount of a flotation frother which comprises the reaction product of an aliphatic C6 alcohol and about 1 to 5 moles of propylene oxide, butylene oxide or mixtures thereof, under such conditions that the coal or mineral values are recovered (see entire disclosure, in particular (column 2, line 11 to column 3, line 42). Suitable alcohols include methyl



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isobutyl carbinol (MIBC). MIBC is itself known to be an effective frother (see column 1, lines 37-55).

One having ordinary skill in the art at the time the invention was made would have found it obvious to combine a frother, as disclosed by Hansen et al. with the frother disclosed by Klimpel et al. in order to make a composition which is useful as a frother. "It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980).

Klimpel et al. do not teach how to prepare the glycol ether frother.

Meschke et al. teach that alkoxylates can be prepared using conventional and well known techniques. For example ethylene oxide can be reacted with a monohydroxy alcohol in the presence of a catalytic material, such as BF<sub>3</sub> and/or potassium hydroxide and the like (see page 4, lines 13-24). After the reaction the alkoxylate(s) can be recovered from solvent and/or unreacted reactants and/or catalyst. One or more conventional techniques suitable for recovering/purifying the alkoxylate product include distillation.

One having ordinary skill in the art at the time the invention was made would have found it obvious to prepare the glycol ether frother of Klimpel using methods which have been shown to successfully prepare a glycol ether compound, such as the method disclosed by Meschke et al.

Klimpel et al. differ from the instant invention in that Klimpel et al. fail to teach the use of the claimed flotation cells.

Firth et al. teach that it is known to use flotation columns to increase efficiency of the flotation process (see entire disclosure, in particular column 1, line 20 to column 4, line 7). Suitable flotation apparatus include MICROCEL and JAMESON cells (see column 2, lines 11-34). It is taught that the aforementioned apparatus and method of the present invention are applicable to all materials in which the component to be separated is naturally hydrophobic or can be made hydrophobic relative to other components in the aqueous feed by addition of appropriate reagent(s) which are referred to as collectors by those of skill in the art (see column 3, lines 57-62). It is taught that depending upon the nature of the feed and the hydrophobic material, it may also be desirable to introduce other reagents such as frothers (see column 3, line 67 to column 4, line 7). One suitable frother disclosed is MIBC (see column 6, lines 34-35). One suitable hydrophobic material disclosed is mineral or coal fines (see column 1, lines 15-17 and the example).

One having ordinary skill in the art at the time the invention was made would have found it obvious to use a frothing apparatus as taught by Firth et al. in combination with a frother as taught by Klimpel et al., since Firth et al. teach that one can successfully utilize a frothing apparatus in combination with a frother in a flotation process. The skilled artisan would have been motivated to make such a combination in order to further enhance the flotation process. Although Firth et al. do not specifically

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disclose EKOF cell, the skilled artisan would find it obvious to utilize any known flotation apparatus.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROSALYND KEYS whose telephone number is (571)272-0639. The examiner can normally be reached on M, R & F 5:30-7:30 am & 1-5 pm; T & W 5:30 am-4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler can be reached on 571-272-0871. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ROSALYND KEYS/  
Primary Examiner, Art Unit 1621

July 7, 2008